cost of taxi transfer was greater among rural health facilities ($p = 0.093$).
Conclusions: Patient referral systems in Liberia are relatively unsystematic. While formal and informal mechanisms for referrals exist at both rural and urban health facilities, establishing guidelines for referral care practices and transportation strategies tailored to each of these settings will help to strengthen the healthcare system as a whole.

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A prospective evaluation of emergency patients presenting to 8-hour primary care clinics

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Background: Very little is known about the acuity case mix of patients presenting to eight-hour primary care facilities. Emergency centre triage identifies patients in urgent need of care and speeds up disposition to higher levels of care.
Objectives: To describe the acuity of patients presenting to eight-hour facilities, and to determine patient mode of arrival as well as the current triage practice.
Methods: A descriptive study of patients arriving at eight-hour primary care clinics in the Western Cape was conducted at four facilities in the Western Cape for a three-month period. The triage nurses collected routine observations from all monthly unscheduled walk-inpatients seen at these facilities. The Triage Early Warning Score was then calculated and the South African Triage Scale acuity level identified and recorded.
Results: A total of 1801 patients were included in the study. The total acuity distribution of the four facilities was as follow: emergency (0.3%), very urgent (15.3%), urgent (26.5%) and non-urgent (57.8%). The 2 smaller clinics (De Doorns and Heideveld) saw a higher percentage of emergency/very urgent/urgent versus non-urgent patients (85% versus 15%).
Conclusions: This study shows that eight-hour primary care facilities have a large proportion of urgent patients (42%) and would benefit from a standardised emergency centre triage tool for patients. Therefore it is recommended that the South African Triage Scale be implemented at these facilities as soon as possible.

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Mission impossible or border security – Practical and effective infection control on air ambulances

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Infection control on air ambulances is particularly difficult and although the principles have been well described in the hospital setting, not all of these can be applied to the air ambulance environment. Due to limited space, limited availability of running water and limitations on the amount of accessible equipment, the utmost care should be taken in upholding infection control principles. Infection control principles have to then be adapted to the air ambulance environment. These principles then have to be enforced by means of strict standard operating procedures (SOP's) and continuous crew training. So what principles and SOP's should be applied to create both practical and effective infection control programme for an air ambulance system?

Various principles can be introduced into an air ambulance system to optimise infection control processes. These include the use of "single use only" disposables, e.g., ventilator circuits and Bag Valve Masks, and needle-less systems. Furthermore, the "bare below elbows" (BBE) principle should be enforced while working with the patient. Minimum acceptable levels of personal protective equipment (PPE) should also be promoted. Cleaning of equipment and aircraft post flight is of utmost importance. Flight crew should sign documentation post flight to declare the aircraft safe and ready for use, for both ground crews as well as subsequent flight crew. In conjunction with this all patients should be swabbed when being admitted into the receiving facility. To evaluate if these principles are followed, random swabs of equipment and the aircraft should be done regularly on a monthly basis.

These principles have been applied to our air ambulance system based from Lanseria International Airport. By combining preventative and control measures, there has been no breach in our infection control strategies, as evidenced by no growth noted on specific and random swabs even when more and more "super bugs" are being identified in hospital. As an air ambulance service flying patients from various African countries, we have the responsibility to conduct our own "Border Security" to keep our hospitals, patients, aircraft and crews clean and safe. In this presentation we will share our "Border Security" principles and experiences with the audience.

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Managing your red, yellow and greens – A guide to safely manage transportation of highly contagious pathogens

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Transportation of highly contagious pathogens in the air ambulance environment is significantly different from the hospital setting. Not only is the patient confined to a specific ward or room in the hospital setting, but exposure to the patient can be controlled far more easily. In the air ambulance environment, the patient is being moved and thus all traditional methods to maintain barrier nursing principles need to be adjusted. Air Rescue Africa (ARA) operates two Isoark units specifically for the transport of highly contagious pathogens. A safe transport guide was essential for the safe and appropriate actions of medical flight crew.

The concept of a red, yellow and green zone was applied to the air ambulance transport environment and guidelines developed. These guidelines describe to the finest detail as when to engage with the patient, washing of the unit before moving into a new zone and when to undo a layer of protective clothing. Not all transferring facilities have these zoning principles in place for a safe transfer into the Patient Isolation Unit, so medical flight crew have to set up their own zoning system prior to examining a patient. A safety officer (3rd crew member) is responsible for monitoring the movement. This is done by following a step by step guide. The goal of this guide is to ensure safe movement of the patient in the isolation unit from the red zone, into the green zone, to ensure the unit can now be touched by flight and medical crew

without the risk of exposure to the infected patient. The crew can now operate normally without having to wear protective gear in the aircraft, while the patient is safely and completely isolated.

These principles take meticulous planning, training and re-training of crew to ensure safe transportation of highly infectious diseases. In this presentation we will share various ideas and principles developed in house to cater for this very unique patient transport modality.

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Emergency management of term pregnant female with decompensated peripartum cardiomyopathy

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Introduction: Peripartum cardiomyopathy (PPCM) is a rare life-threatening cardiomyopathy of unknown cause that occurs in the peripartum period in previously healthy women. The diagnosis of PPCM rests on the echocardiographic identification of new left ventricular systolic dysfunction during a limited period surrounding parturition. This entity presents a diagnostic challenge because many women in the last month of a normal pregnancy experience dyspnoea, fatigue, and pedal oedema, symptoms identical to early congestive heart failure. Therefore, it is important that a high index of suspicion be maintained to identify the rare case of PPCM as general examination showing symptoms of heart failure with pulmonary oedema. PPCM remains a diagnosis of exclusion.
Discussion: An interesting case of 37-year-old female (primigravida) G1P0L0 presented at 37 weeks gestation with chief complaint of progressively increasing breathlessness for 15 days and swelling in both lower limbs for 7 days presented in ED. Her general condition – poor, blood pressure – 180\110 mmHg, pulse – 136\ min irregular, RR 36\min, Pallor + +, JVP raised, pedal oedema + cardiovascular exam showed S3 gallop rhythm, P2 loud (pulmonary hypertension) and chest with bilateral crepitation's (pulmonary oedema). She was managing on the line of preeclampsia toxaemia elsewhere. We diagnose her having CHF due to PPCM that was managed only with timely diagnosis and prompt management and save two lives with help of multidisciplinary team. Lesson from successful case management will help others to differentiate physiological changes during pregnancy with other life threatening disease that can be with or during pregnancy. The detailed management and discussion will be presented at time of presentation.

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Comparing the correlation between clinical complication of severe influenza infection and body mass index

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Background: It was well known obese had increased odds for influenza-associated complications and death, but the correlation between the clinical severity such as septic shock, acute renal failure and adult respiratory distress syndrome and body mass index (BMI) was limited.
Methods: Medical charts were reviewed for all hospitalized adults ($\geqslant$18 years old) with laboratory-confirmed influenza (defined as positive by specific PCR) in the region of New Taipei city (Northern Taiwan). We analysed the association between BMI and clinical complication (defined as septic shock, acute renal failure and adult respiratory distress syndrome).
Result: During the period from September 2008 through February 2013, a total of 24 patients were included, with the median age of 50.2 years (IQR: 30–74 years). Fourteen (58.3%) were admitted to intensive care unit and two (8.3%) died. All fatal cases were associated with bacteraemia at admission. Nine (37.5%) were within the reference BMI range ($<$27 kg/m2) and fifteen (62.5%) were obese ($\geqslant$27–33 kg/m2). Among the obese group, 10 (66.67%) were aged $\leqslant$60 years. Fifteen (62.5%) had an underlying medical conditions. The risk of septic shock (odds ration = 17.5, $p = 0.015$) and acute renal failure (odds ratio = 9.75, $p = 0.028$) was significantly higher for those who were obese.
Conclusion: Increased risk of severe outcomes associated with obese, particular in patient's aged $\leqslant$60 years of age. Septic shock and acute renal failure were significantly more common with obese persons. Although the increased severity of influenza was observed in those patients, in-hospital mortality was not greater in our study.

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Critical challenges in establishing emergency physician driven emergency departments – A Durban experience

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Emergency medicine (EM) has become a global discipline and plays an integral role in providing integrated emergency medical care. In South Africa, emergency medicine is a relatively new discipline, and while well-established in the Western Cape and Gauteng, it is still in its infancy in KwaZulu-Natal. Although training in EM has been on-going at the Pietermaritzburg and Ngwelezane complexes, there are currently no accredited training facilities in the Durban Metro area, and only two emergency physician-headed Emergency Departments (EDs) in the eThekwini region.

Despite understanding the unique complexities of the KwaZulu-Natal health system, we still encountered numerous challenges in establishing functional emergency physician driven EDs in Durban. Challenges encountered were:

- Lack of awareness of the existence of emergency medicine as a specialty.
- Lack of interaction between emergency departments and other disciplines.
- Inadequate staffing of the ED: the ED is still seen as a refuge for those who have nowhere else to work, and has not been a staffing priority for most facilities.
- Poorly equipped, under-resourced emergency departments.
- No evidence based practice guidelines and undefined inter-facility referral policies.
- ED overcrowding and access block.